1. A method carried out in a computer for provisioning rings in a ring-based network having a given topology of nodes and logical links that interconnect said nodes, and a set of traffic demands that is desired for said network to carry, comprising the steps of:

executing a process that identifies a set of feasible rings in said network, which is a subset of all possible rings in said network that satisfy a given constraint;

executing a process of identifying a routing for the traffic demands in said set of traffic demands, while aiming to minimize both a number of traffic demands that are not routed and an overall routing metric, where the routing metric is a cost measure that is associated with using one of said logical links in a routing path of a demand;

identifying a set of rings from among a set of feasible rings that minimizes a ring assignments cost measure that includes a cost associated with not covering routed demands with rings and a cost associated with using rings to cover demands; and

outputting the set of rings developed by said step of identifying for provisioning said nodes of said network.

2. The method of claim **2** where said constraint requires a feasible ring to have not more than a given number of nodes, and have a mileage cost that is not more than a given mileage cost.

3. The method of claim **1** further comprising the step of provisioning said nodes of said network in accordance with said set of rings developed by said step of identifying.

4. The method of claim **3** where said provisioning is accomplished through electronic transmission of information from said computer to said nodes of said network.

5. The method of claim **1** where said process of identifying a routing for the traffic demands

(a) considers a routing path for each of said demands, starting with the demand having a lowest routing path cost, based on a table that identifies a path having a lowest routing path cost for each arbitrary pair of nodes of said network;

(b) assigns a demand to said path having said lowest routing path cost, if capacity exists on said path having said lowest routing path cost;

(c) assigns said demand to a path having a higher routing path cost if capacity does not exist on said path having said lowest routing path cost; and

(d) leaves said demand un-routed if capacity does not exist on any path that can carry said demand, thereby obtaining an identified routing of said demands.

6. The method of claim **1** where said process of identifying a routing for the traffic demands employs a shortest routing path metric

7. The method of claim **1** where said process of identifying a routing for the traffic demands identifies a set of demand routings A by:

(a) considering a routing path for each of said demands, starting with the demand having a lowest routing path cost, based on a table that identifies a path having a lowest routing path cost for each arbitrary pair of nodes of said network;

(b) assigning a demand to said path having said lowest routing path cost, if capacity exists on said path having said lowest routing path cost;

(c) assigning said demand to a path having a higher routing path cost if capacity does not exist on said path having said lowest routing path cost;

(d) leaving said demand un-routed if capacity does not exist on any path that can carry said demand, thereby obtaining a first identified routing of said demands, B;

(e) changing order in which said demands are considered and repeating steps (b), (c), and (d) to result in a second identified routing of said demands, C; and

(f) assigning A=B when number of un-routed demands in B is less than number of un-routed demands in C, and A=C when number of un-routed demands in B is not less than number of un-routed demands in C.

8. The method of claim **7** where said table is pre-computed.

9. The method of claim **1** where said step of identifying a set of rings employs an integer linear programming module to obtain said set of rings that minimizes said ring assignments cost function.

10. The method of claim **1** where said ring assignments cost function is $\sum_{j=1}^{J} c_j x_j + p \sum_{i=1}^{I} s_i$, that is minimized subject to $\sum_{j=1}^{J} a_{ij} x_j \leq w_i$ for each link *i*, and $\sum_{j=1}^{J} a_{ij} x_j + s_i \geq d_i$ for each link *i*, where

c_j = "cost" of a ring in candidate ring family *j*,

d_i = number of units of demand routed on logical link *i* of said network, minus the number of available information channels that are already part of ,

a_{ij} = 1 if ring of family *j* employs link *i*; 0 otherwise,

p = penalty for not covering a unit of demand on a logical link, - one of the parameters supplied by the user to step 101,

w_i = number of available idle information channels on link *i*,

x_j = number of copies of ring family *j* to include in the solution, and

s_i = number of demands not covered on logical link *i*.